

Protocol for the Use of IM Ketamine for Children

Selection of Patients

- ♦ Children between 1 and 12 years of age.
- ♦ Short procedures eg suturing of complex lacerations; repair of finger tip injuries; foreign body removal; minor orthopaedic manipulations and I & D of abscesses.

Contraindications

- ♦ Active lung infection or disease, including URTI.
- ♦ Cardiovascular diseases eg congenital heart disease, cardiomyopathy, hypertension.
- ♦ Head injury associated with loss of consciousness, altered mental status, or vomiting.
- ♦ Central nervous system diseases eg hydrocephalus, intracranial masses, epilepsy.
- ♦ Others: psychosis, porphyrias, thyroid diseases, glaucoma.

Preparation

- ♦ Ensure the child is starved for a minimum of three hours, and four hours where the injury has resulted from an accident. (Child may have clear fluid to drink up to one hour before procedure.)
- ♦ Weigh the child and record this in kg.
- ♦ Obtain a written consent from parent(s) or guardian of the child after explaining the risks and side effects of ketamine.
- ♦ Encourage parent(s) or guardian to stay with child, if they wish, during procedure and/or recovery and give them a Ketamine Information Sheet.
- ♦ Apply EMLA cream to the preferred area of injection ie buttock cheek or thigh, for a minimum of 60 mins, if possible, before the injection.

Requirements

- ♦ Doctor carrying out the procedure to have experience in advanced resuscitation skills in children. (If this is not possible, a person with such skills to be immediately available in the A&E.)
- ♦ Presence of a qualified nurse - preferably with paediatric experience and training in care of the unconscious patient - for monitoring until child is fully recovered.
- ♦ Record baseline vital signs: T, PR, RR, BP, SaO₂% and conscious level before administering ketamine.
- ♦ Oxygen supply, suction equipment, pulse oximeter to be available.
- ♦ A fully equipped paediatric crash trolley should be available in the department for advanced airway management.
- ♦ A designated area in the department where noise level and disturbance can be kept to a minimum.
- ♦ Intravenous access is not deemed necessary.

Dosages

Ketamine: 4 mg/kg intramuscular as initial dose.

One booster dose of 2 mg/kg may be given after 10 minutes if adequate sedation has not been achieved.

Atropine: 0.02 mg/kg should be given with the initial dose of ketamine only. (Atropine is used to minimise ketamine-associated hypersalivation and hypersecretions.)

Procedure

- ♦ Ketamine checklist to be completed contemporaneously.
- ♦ Ketamine and atropine are administered intramuscularly, with the child held in parent/carer's arms, where possible.
- ♦ Once sedated, child is placed on the trolley and pulse and oxygen saturation monitored continuously.
- ♦ Position the child during the procedure to obtain an optimal airway patency.
- ♦ Occasional suctioning of the anterior pharynx may be necessary.
- ♦ Continuous monitoring with pulse oximetry is required. Additional monitoring using ECG may be necessary if reliable pulse rate cannot be obtained from pulse oximeter.

Recovery area

- ♦ Quiet area with lowered lighting, if possible, to decrease visual and auditory stimuli.
- ♦ Minimal physical contact to minimise tactile stimuli.
- ♦ Child to be in recovery position throughout.
- ♦ Mean time for recovery is 60 – 140 minutes.
- ♦ It is recommended that there should be continuous monitoring until recovery, with observation of respiratory rate and pattern.

Side effects

Observe for:

- ♦ Airway compromise ie malalignment, laryngospasm, apnoea/respiratory depression
- ♦ Hypersalivation/hypersecretions
- ♦ Agitation
- ♦ Vomiting
- ♦ Hallucinations/Nightmares/Dreams
- ♦ Ataxia

Discharge

- ♦ Only when child has returned to pre-treatment level of awareness, recognition, speech and purposeful physical activity.
- ♦ Tell parents/carers that child may drink clear fluids if he/she wishes, but should not eat anything for the first 2 hours after the procedure, or if feeling sick.
- ♦ Instruct parents/carers to closely observe child's ambulation and general physical state. If concerned they should contact the Paediatric A&E.

For the duration of the ketamine audit:

- ♦ Give parents/carers a 'Use of Ketamine in A&E' Questionnaire, together with a covering letter and SAE, and ask for their co-operation in completing and returning it.

(Adapted from *Ketamine Protocol – Loma Linda University ED*
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